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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/784,930

02/25/2004

Tsunetoshi Honma

2004-0301

9598

513

7590

06/21/2006

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EXAMINER

ZUCKER, PAUL A

ART UNIT

PAPER NUMBER

1621

DATE MAILED: 06/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/784,930

Applicant(s)

HONMA ET AL.

Examiner

Paul A. Zucker

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9, 14 and 15 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1, 8 and 9 is/are allowed.
- 6) ☒ Claim(s) 2-7, 14 and 15 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 10/019,670.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.
2. The disclosure is objected to because of the following informalities: Applicants should amend the first sentence of the specification to reflect the issue of the parent as 6,723,857. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 7 is rejected under 35 U.S.C. 102(b) as being anticipated by Ragauskas et al (Canadian Journal of Chemistry, ¹³C Magnetic Resonance Studies. 120. The Simmons-Smith Reaction With Some Silyl Enol Ethers. Unusual Ring Expansion of Some Norcamphors, 1985, 63, pages 2969-2974). Ragauskas discloses (Page 2973, column 1, 1st full paragraph) a method for the synthesis of enol ethers that comprises reacting a cyclic ketone with LDA (a base) and trimethylsilyl chloride. Ragauskas discloses (Page 2970, column 1, center) the formation of compound 14,

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the silylenol ether of nopinone by this method. Ragauskas therefore anticipates claim 7.

4. Claim 4 is rejected under 35 U.S.C. 102(b) as being anticipated by Seno et al (Chemical and Pharmaceutical bulletin, Thromboxane A₂ Receptor Agonists. Synthesis and Pharmacological Activity of 6,6-Dimethylbicyclo[3.1.1]heptane Derivatives with a Substituted Sulfonylamino Group at C-2, 1989, 37(6), 1524-1533). Seno discloses (Page 1526, top left, **25→26**, see also page 1529, column 1, first full paragraph) a process for producing a compound of formula (III) from a compound of formula (II). Seno therefore anticipates claim 4.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966),

that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 2- 6, 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seno et al (Chemical and Pharmaceutical bulletin, Thromboxane A₂ Receptor

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Agonists. Synthesis and Pharmacological Activity of 6,6-Dimethylbicyclo[3.1.1]heptane Derivatives with a Substituted Sulfonylamino Group at C-2, 1989, 37(6), 1524-1533) in view of Rerick et al (Tetrahedron Letters, Lithium Aluminum Hydride-Aluminum Chloride Reduction, 1963, pages 629-634).

Instantly claimed is a process comprising the transformations (II) → (III)→(IV) wherein the transformation (III)→(IV) is carried out using aluminum anhydride.

Seno teaches (Page 1526, top left, 25→26→27, see also page 1529, column 1, 1st and 2nd full paragraphs) a process for producing a compound of formula (IV) from a compound of formula (II) via the formation and subsequent reduction of the oxime ether.

The difference between the process taught by Seno and that instantly claimed is that Seno teaches the use of sodium in alcohol for the reduction of the oxime to the primary alcohol while the use of aluminum hydride (generated from LiAlH₄ and AlCl₃) is instantly employed.

Rerick, however, teaches (Page 631, top, Table I, entry 2) that the aluminum hydride (AlH₃) generated from LiAlH₄ and AlCl₃ may be used to reduce oxime ethers to the corresponding amines.

One of ordinary skill in the art would therefore have been motivated to substitute the aluminum hydride reducing agent for the sodium in alcohol reagent system in order to avoid the use of the dangerous and difficult to handle sodium metal. There would

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have been a reasonable expectation of success based on the fact that Rerick teaches the suitability of AlH_3 for reducing oximes.

The instantly claimed process would therefore have been obvious to one of ordinary skill in the art.

Allowable Subject Matter

6. Claims 1, 8 and 9 are allowed. The following is a statement of reasons for the indication of allowable subject matter: Compound (X) is novel and therefore processes for producing it are novel as well. The process for making compound (II) set forth in claim 1 is neither disclosed nor fairly suggested by the closest prior art: Ragauskas et al (Canadian Journal of Chemistry, ^{13}C Magnetic Resonance Studies. 120. The Simmons-Smith Reaction With Some Silyl Enol Ethers. Unusual Ring Expansion of Some Norcamphors, 1985, 63, pages 2969-2974), Seno et al (Chemical and Pharmaceutical bulletin, Thromboxane A_2 Receptor Agonists. Synthesis and Pharmacological Activity of 6,6-Dimethylbicyclo[3.1.1]heptane Derivatives with a Substituted Sulfonylamino Group at C-2, 1989, 37(6), 1524-1533) in view of Rerick et al (Tetrahedron Letters, Lithium Aluminum Hydride-Aluminum Chloride Reduction, 1963, pages 629-634).


Conclusion

7. Claims 1-9, 14 and 15 are pending. Claims 2- 7, 14 and 15 are rejected. Claims 1, 8 and 9 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Zucker whose telephone number is 571-272-0650. The examiner can normally be reached on Monday-Friday 5:30-2:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


PAUL A. ZUCKER, PH.D.
PRIMARY EXAMINER
